

sub B1 7 1. (AMENDED) A method for creating a narrow linewidth hybrid semiconductor laser comprising:

soldering a semiconductor optical gain chip to a micromachined silicon bench to create an internal element of said laser; and

coupling said optical gain chip to a silicon-dioxide and silicon-oxynitride based waveguide terminating in an external feedback element, said step of coupling further comprises:

A6 using a flip-chip aligner-bonder to horizontally align the coupling of said gain chip to said waveguide; and

using a plurality of micromachined stand-offs to vertically align the coupling of said gain chip to said waveguide.

2. (AMENDED) The method of claim 1 wherein said external feedback element comprises Bragg gratings.

sub B1 8. (AMENDED) The method of claim 1 wherein said step of coupling is achieved in miniature micromachined units.

A7 9. (AMENDED) The method of claim 1 wherein said waveguide further comprises:

a first layer of silicon-dioxide;

a layer of silicon-oxinitride; and

a second layer of silicon-dioxide.

sbgi 7 11. (AMENDED) The method of claim 9 wherein the interface between said first layer and said silicon-oxinitride layer and the interface between said second layer and said silicon-oxinitride layer are coated with an antireflection coating in order to further reduce loss and scattering at said interface.

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Please cancel claims 5, 10, 16-30.

Applicant hereby submits a marked-up copy of the amended claims separate from the amendment as required under 37 CFR 1.121(c)(1)(ii). Applicant further supplies a clean copy of the entire claim set.